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APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF
PEOPLE'S REPUBLIC OF CHINA

(CPR/89/026) - Micro-Analysis Center for Electronic Materials and Devices

IPF:(1987-91) $ 163 096 0000

Date of approval by the AC:[1/]	27 March 1991
Expected duration:	Three years
Proposed executing agency:	Government
Government implementing agency:	The China International Center for Economic and Technical Exchange (CICETE)
Proposed UNDP contribution:	$ 1 556 000 Source of Funds: IPF
Total UNDP budget:	$ 1 556 000

Project background

China's microelectronic industry started in the 1960's but remained small and primitive until the early 1980's when large investments in manufacturing and research were undertaken including establishing more than 1000 factories. Nevertheless the technological level of the products remains low and the yield performance continues to be unsatisfactory. Quality control constitutes a major factor in strengthening the weak capabilities of the industry. Lack of quality control is the result of inadequate institutional and technical tools for microanalysis of materials and devices and for the training of personnel. The ability to conduct rapid, reliable micro-analysis has caused gross inefficiency and loss of time and money to enterprises desired to develop and manufacture products destined for the markets in China and abroad.

The Government is therefore continuing investments in R & D for 3 and 1 micron-technology levels of chips to cope with the large upsurge in local demand for chips. This constitute a further significant advance for China, but a level of technology at least a full generation behind Japan and the West. Of these enterprises, research institutes and universities for micro-analysis and problem-solving of their respective production and R and D work, production and research complexes are established in Beijing, Shanghai, Wuxi, Shaoxing and other cities, some of which depend on importation of production lines using local capital and joint venture arrangements. As part of the efforts to meet demand, the Government in the early 1980s began strengthening the Institute of Materials Science of Fudan University in Shanghai. The Planning commission has now designated the Institute as the National Center for Microanalysis of Microelectronic Materials and Devises (MCEMD) to

[1/] This Fact Sheet reflects the status of the project/revision at the time it was approved by the Action Committee; modifications to the project/revision may have occurred subsequently.

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address needs in the sub-sector, especially that of quality control and sophisticated microanalysis which cannot be done at the plant level. The example for such a central support service, operating on a free-based system, comes from Western countries, such as the United States of America. Problems come from inadequacies in the number and competence and experience of personnel engaged in micro-analysis. Equipment available is old and inadequate for analysis of current generation production.

Description of project

The project will significantly upgrade the MCEMD at the existing Institute of Materials Science of Fudan University. The Center already functions at a basic level but will be able to respond to an industry based work plan and ad hoc requests to diagnose problems existing in the processing and fabrication of electronic devices and will train personnel both in the center and from the industry for specific work in microanalysis. The project will improve the operating performance, quality and reliability of the semiconductor devices for the microelectronics industry in China which is currently at the 5 micron level and facilitate the advancement of this sector to the 3 micron level and, at the R & D level, to the 1 micron level, in line with more technologically advanced micro-electronic producing countries.

Project activities will include: (a) training of personnel in various microelectronic analysis techniques and the operation of modern laboratory equipment; (b) establishment of adequately equipped laboratories; (c) creation of an operational plan for organization, work content and implementation for the MCEMD; (d) provision of microanalysis services to industrial enterprises throughout China to help increase yield performance and reliability of manufactured products; (e) special assistance to four factories as models to help solve systematically their existing problems for modifying processing and increasing yield and reliability; and (f) conducting an international conference and various seminars for training personnel from MCEMD and industry.

Inputs

UNDP will provide 15 work-months of international consultants in various micro-electronic analysis techniques; 18 short-term fellowships for training in micro-analytical techniques, 15 work-months for study tours and conference participation; micro-analysis laboratory equipment; and miscellaneous costs.

Financial data

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Personnel	182 000
Training	438 000
Equipment	917 000
Miscellaneous	19 000
Total	1 556 000

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